Frankly Speaking

Put Your Right Foot Foremost!

"PUT your right foot foremost" and "Don't hide your light under a bushel" are bits of advice that are as old as the hills. Many a first-rate program has failed to receive the attention it deserved because it was poorly presented. Clothes don't make the man, but they surely improve his appearance. And cellophane improves the appearance of even the most attractive product.

In presenting traffic engineering to the public, and particularly in seeking approval for proposals, there are a number of ways in which these old saws may be followed to advantage.

For example, when traffic engineers recommend improvements which they know will reduce congestion and decrease accidents, they too frequently make the mistake of putting their excellent recommendations into language as interesting and as intelligible as Sanskrit to officials in charge. Why don't they spend more time polishing their synopses of projects? Recommendations should be expressed in concise, easily-understood language.

Also, many traffic engineers, when they have worked to make an intersection or a highway as efficient as possible, fail to check on actual working results. They should obtain the facts concerning conditions before and after improvement. Then, if asked, they can state with complete confidence, "Accidents were reduced 85%" or "Congestion was reduced 90%." Armed with such black-and-white statistics, they can present recommendations for new projects knowing that their proposals will receive the most careful consideration. Proof of past accomplishment is the surest indication of future success.

Furthermore, traffic engineers tend to understate the amount of technical knowledge and skill their profession requires! They are likely to say, "This was the problem; there is the solution." Well, there are two ways of producing an answer to a problem. One way is to work it out, step by step, and the other way is by guesswork. Traffic engineering results are certainly not achieved through guesswork! The more effort traffic engineers make to convince other engineers and the general public that traffic engineering methods are based on sound scientific principles, the sooner our profession will be recognized as a distinct branch of the engineering sciences.

In times like these, when demands on public funds are higher than ever before, traffic engineers must present their problems and solutions in an intelligible, convincing manner. Otherwise their recommendations may be shouldered aside by other proposals whose effects will not achieve the real saving in life, property and time that results from traffic engineering.

Harold D. Hammond

Member, Board of Direction

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SOLVE THAT PARKING PROBLEM, OR—

By HENRY W. OSBORNE

THE parking problem affects everyone: government, business, the automobile industry, mass transportation, delivery services, and the individual motorist.

Parking at the curb will never supply the demand in the central business district of most of our cities, irregardless of short time parking regulations, parking meters, and the best enforcement.

Study of the Facts—Research

It has been an interesting task to study the reports, periodicals, and the other sources of information of the past ten years concerning solutions of the parking problem. This source of information should provide a broad background for future planning.

Plans will be worthless unless they are based upon sound facts and good design, and shall serve the purpose for which they have been created. In other words, a good plan should grow out of thorough research. This will bring to light the ramifications of the problem, which will include responsibility, policies, utilization of the city plan for the storage of vehicles, the methods of accepted designs, good operation methods, and ownership.

Responsibility and Policies of the Affected Parties

The magnitude of this problem is so great that I do not believe it can be solved without the fullest cooperation of private enterprise and government. Both parties have shunned the responsibility. The municipal officials felt it encroached upon private enterprise, while the businessmen attempted to solve the problem either individually or collectively. The latter, of course, only benefited those merchants who could financially participate in such a set-up.

In some cities the traffic officials, or those responsible for the regulation of curb parking, have done everything within their means to get the greatest turnover possible from existing curb spaces, which, by the way, are diminishing in number every day. Instead of expensive street widenings, it has been found that the elimination of parking results in the full utilization of the pavement width for traffic movements. This is the logical service for existing pavements.

Policies on the part of the municipal government will have to be altered. Likewise, the Chamber of Commerce or other organizations representing business and the parking lot operators should be made to realize that the policies of the affected parties must be changed for the mutual benefit of all.

The problem demands that facilities be created that are accessible, convenient, efficient, and permanent; in, near, and around the central business area, the manufacturing plant, and the suburban community merchandising center. The creation of special assessment districts as used in Kalamazoo, Michigan, may be one way to solve this problem, thereby making the benefited properties responsible for their own parking facilities. There are many other examples where the municipality, on a small scale, has attempted to create these facilities. The Hollywood plan sounds excellent, for a group of property owners have formed a non-profit corporation which will pay all cooperating parking lot operators for parking tickets validated. This plan thus provides free parking to any and all customers regardless of where they shop or park. The participants in this corporation have certainly realized their responsibility.

Haphazard or Planned Development?

The greatest proportion of existing parking facilities have come about by

the razing of depreciated properties or converting some previously non-serviceable piece of land into the parking service. Many communities have filled in river banks and converted public properties into this use. Property owners have torn down buildings with the sole thought of saving taxes, although in many cases it was found that the saving amounted to only about a third of the annual tax bill. Later this property was used for off-street parking. Many of such newly created parking lots were not located properly in respect to the source of demand, and the lots so created were never put into condition to serve the purpose. They became eyesores, and hard to control by the city, for the income never justified the expenditure of creating an efficient and permanent institution.

I think that in the future many cities will encircle the central business district with parking facilities, or develop service streets providing continuous strips of half-block off the street parking on both sides in the central business district. The latter plan has been advocated in the city of Buffalo, New York.

We have planned efficient highways and built manufacturing plants which can turn out endless streams of goods. We are designing and building better homes every day. Why can't these efforts be turned to planning our civic centers, business districts, and other centers of community activities in the same efficient manner?

Adoption of Standard Methods of Design and Operation

Both the Yale Bureau for Street Traffic Research and the American Automobile Association have done much in recent months in the study of the parking problem. The Yale prospectus for a study of the parking problem indicates that a thorough analysis will be made of the effects, the need, the measure of demand, methods of parking and operation, and other requirements of parking facilities, which will give us much basic information. This study should certainly bring out many worthwhile methods used at present which can be incorporated into standards to guide traffic technicians, city planners, architects, and others responsible for creating the design and the installation of these much needed parking facilities. We have standards and specifications for all types of construction, and handbooks on material specifications. Why can't we have information on the design and operation of parking facilities? The American Automobile Association committee on parking and terminal facilities is bringing to light much information on the economics of this problem which should be of interest to all of us.

The standardization of some of the following would do much in guiding the parking plan. This includes such problems as driveways to both the open-air and enclosed storage facility, type of building, ramp design, illumination, drainage, fees, supervision, and operation methods.

Some of the latest building restrictions include regulations that certain types of buildings must provide parking space for each unit of tenancy or on the basis of so many people within the building. I believe that such a restriction will work out satisfactorily in the new developments, but will not help us much in solving the problem within our existing business districts. This legislation would have to be made retroactive to give us any authority to clean up existing congestion.

The parking lots of tomorrow will be so located that we may have one, two or more hours, or all day parking, just as we now have curb parking restrictions—in other words, we will have the short time and long time parking lot.

Temporary or Permanent Locations?

The present status of our parking lots is one of "here today and maybe gone tomorrow." There is always the possibility that the property may be again used for building purposes or turned to some other private use.

As you may know, Flint has had a plan for some years to ring the central business district with a system of parking lots. This plan also includes a system of parking lots fringing a limited access thoroughfare two blocks from the main street of the central business district. Using the land adjacent to this thoroughfare for off-street parking facilities will have a dual benefit. It will keep the business district from spreading, and at the same time will help to take traffic to and from the area in a minimum of time, without interference and delay. These parking facilities should be planned and become a part of the street right-of-way system.

Our problem is not only one of moving and carrying traffic between origin and destination, but one of providing a temporary storage place between the two points.

Private, Municipal, or Joint Ownership?

This question brings up points discussed in other sections of this article such as policy, responsibility, permanency, and planned facilities. I do not wish to advocate one or the other, but I do believe that it is too big an undertaking for private enterprise. The private operator can only afford to invest his money in an enterprise which will re-pay him his operating cost and give him a fair return on his money. The existing parking lots are in business because they can supply the *average* demand and get a fair return on their endeavors. The problem is one of having large enough spaces at the time of peak or sustained demand.

Some cities need a great deal of parking space which the private operator cannot lease or purchase and finance, and this is where the government should step into the picture, purchase the land, and lease it to private operators, or operate municipally, controlling by contract the operation and maintenance, and uniformity in fees. It is still my contention that it is a problem too great for parking lot operators, the Chamber of Commerce, or any other business operator.

Accessibility and Convenience Will Relieve Traffic Congestion

In most communities, existing legislation for the control of parking lots does not give sufficient authority to exercise any great degree of control. About all it amounts to is collecting the annual fee to operate the business. It is a fact in many cities, as in Flint, that the parking lots abutting important streams of traffic are a source of trouble the minute they start operating. Many times they are on important arterial routes where traffic will be hindered by incoming and outgoing traffic movements from the parking lot. Usually pressure is put on by the operator for driveways to this thoroughfare, which results in considerable marginal and internal stream friction. We have been forced in Flint to grant driveway permits which we know are going to be detrimental to our traffic movement, but there is little that can be done about it except in limiting the number of driveways.

A well planned lot should be designed to have entrances and exits on the minor streets, which would cause a minimum of congestion and delay to both the traffic to and from the parking lot and to through traffic movements. If we can lay out the parking lots around the edge of the business district or at the proper locations within the area, many cars would never have to enter or cross the business district, making it unnecessary

for large volumes of vehicular traffic to mingle with pedestrian traffic.

Let me prophesy that the time will come when parking within the central business district will be eliminated entirely. Parking meters will be moved to the off-street parking facilities where they will help in defraying the expense of such a facility. In our parking prohibition and restriction plans we are eliminating parking at every point at the curb possible for the convenience and safety of moving traffic.

Stability of Property Values—Retard Decentralization

The creation of parking facilities accessible and convenient to the properties in our downtown business centers will forestall further decentralization and will bring back business to the district, so that the property owners can well afford to rehabilitate their existing properties and remove the blighted look in the area. Our heaviest assessed valuations have been made on our downtown properties. In some cities these business establishments pay 10% of all real estate taxes paid by the whole community. If we are to maintain this income, we are going to have to do something about the parking problem.

Summary

It has been said that the parking problem may eventually be the final bottleneck of congestion, and the limiting factor in the full use of our transportation means. So far, in most places, the motorist and merchant have endured to some degree the chaos of traffic congestion. Traffic congestion has been a cause of decentralization, blighting our central business area and creating false senses of property values in the outlying districts of the city.

Much diligent investigation and impartial study of all the facts must be made, so that we may devise the wisest plan from our research. The plan must be permanent, embody the best of details in design and operation, and be accessible and convenient, which will result in the general relief of traffic congestion within the business centers.

It is our job to adopt a plan, publicize it, and educate the merchant, the city official, and the motorist so that it will be an easy job to sell.

An original article by Henry W. Osborne (Assoc. I.T.E.), Traffic Engineer, City of Flint, Michigan.

COUNTY ROAD SAFETY PROBLEMS IN RELATION TO TRUNKLINE SAFETY PROBLEMS

By A. F. Malo

THE average motorist, no doubt, assumes that there is no substantial relation in safety problems, whether on the trunkline system or on county roads; that is, the average motorist who gives any thought whatever to the safety problem. It might even seem that way to some of us who are more closely connected with the business of traffic and safety. Those of us who work in the State Highway Department are, naturally more familiar with our trunkline problems and their correction or improvement than we are with the county roads; but it is apparent that there is a direct relation between the two systems. Greater cooperation between the two responsible organizations will show us more clearly what this relation is, and should contribute to greater progress and more of the results we are all striving to obtain. To prepare this paper, we have made some studies based upon the summaries of accident statistics for the year of 1939. *Only fatal accidents were used.* There is also a third system—that of the "cities and villages"—but it is only mentioned here for its comparative value.

The total number of fatal accidents for the year were just about evenly divided. Each of the three systems were responsible for approximately one-third. They were slightly higher in the cities and villages (550) but very nearly the same on the trunkline and county road systems—438 to 408 respectively. This almost even distribution of accidents among the three systems would naturally lead one to wonder "why?"—because upon first thought it would not seem to be the fact, due to the vast differences in the character of each system. To answer this question, we compared further each different "type of accident" on the trunkline with that same type on the county road, and here is what developed.

The Pedestrian

There were 109 pedestrians killed on the trunklines and nearly that many—or 100—killed on the county roads. This total for either system, of course, is shocking. To analyze this situation takes us into a field where there are no definite figures to study. It can be reasonably said, however, that there is more walking done on county roads and that, therefore, there is more exposure. It can also be said that such facility as wide shoulders and lighting are not available on the county road and that lack of them contribute to the high pedestrian rate. It is interesting to note here that these fatals are not school children, either. Nearly 63% of these people were between the ages of 25 and 64. Encouragement comes from the fact that only a little over 14% of this group fall in the school age on the county system, and approximately 10% on the trunkline. It is certainly indicative that the combined efforts of Engineering, Enforcement and Educational agencies are bearing fruit so far as the school children are concerned.

Motor Vehicle vs. Motor Vehicle Accident

Here we have 180 on the trunklines and 115 on the county roads. In this study the heretofore 50-50 balance seems to be broken, and considerably more of the two-car accidents is found on the State trunkline. This might be expected. The vehicle mileage is much higher; therefore, the traffic volume is proportionately higher, which in turn produces greater density. When a great density condition exists, the exposure possibility is greater and the two-car type of accident is the inevitable result.

Collision with Railroad Train Accident

The trunklines have been able to materially reduce this type of accident in recent years due to the cooperation of all parties concerned—the railroads themselves — the Federal Bureau of Roads and the State Government. In the whole year of 1939 only 10 fatal accidents were reported at railroad crossings. The county roads during the same period had 33 fatals. This high rate on the county road can be attributed to poor sight distances; the improper approaches, insufficient warnings and signals, and fewer grade separations.

Collision with Bicycle

The bicycle problem is a difficult one at best, and it is believed that more control through legislation is in order. Many children today ride their bicycles not for pleasure alone, but of necessity to get to and from school, and also to earn money by delivering daily and Sunday papers and parcels, and running errands. There must be some reason, however, why the county roads had over twice as many fatal bicycle accidents as the trunkline system—22 to 10—and eight more than all the cities and villages which had 14. Statistics were not available to produce any answers as to why this county road rate is so high. Schools

and shopping centers are not within such easy reach in the county areas and may give rise to the greater use of the bicycle. It is believed, however, that narrow shoulders and lack of hard surface roads present greater hazards. Collision with the horse-drawn vehicle can almost be disregarded. The trunkline system had one (1) and the county roads two (2).

Collision with Fixed Object and Non-collision Accidents

We refer to this type as one-car accidents, and because they are one-car they are more difficult to analyze. Many times there are no witnesses and the reporting officers cannot get sufficient information. A comparison of this type on the two systems again shows an almost even split—126 for the trunkline and 130 for the county roads. In this connection we must again refer to the lack of hard-surface roads and the prevalence of narrow shoulders to properly handle present-day speeds on the county roads. There are perhaps other factors which contribute mightily, such as narrow bridges, trees, poles, and mail boxes too close to the road; lack of warning signs or signals, and the improper placement of them; lack of reflectorized signs and other aids for the night driver. Over 50% of the fatal accidents on the county roads happened during the dark hours when the volume of traffic is greatly reduced. The percentage of this night volume to the total volume on the county roads is not known, but it is reliably reported as only 25% on the trunklines.

We have so far discussed specific types of accidents, first on one system and then on the other, in an attempt to find some clues. Now to further compare and analyze the two systems, it would be in order to mention a few general circumstances attending these fatal accidents. The reports which are available in which speed at the time of the accident is indicated are incomplete and probably open for criticism, but there is no other source of information. On the county roads fatal accidents increase proportionately with the increase in speed from 11 at 10 miles per hour to the peak of 109 at from 30 to 39 miles per hour. Does this mean that this range of speed is too high for conditions? It might be so. Certainly the facilities for higher speeds are not available on the county roads.

Another interesting development came out of the studies on the "Manner of Collision" showing that right angle collisions caused more fatals than any other on each system, but that the county roads have 67% and the trunklines only 46%.

Results also indicate that the character of the people involved in these accidents vary greatly. For instance, nearly twice as many fatalities occurred in the "under 20 years of age" group on the county system as on the trunklines. Exactly four times as many were from out-state on the trunklines. About 13% were reported as "Driver had been drinking" on the county roads and 10% on the trunklines.

In conclusion, after having compared conditions on both systems, it would seem that the county roads are in most need of a well planned and uniform safety program. This statement is made in view of the fact that although the length of the county roads is much greater than the trunkline system, the volume of traffic on the trunkline is almost 2½ times as great as that on the county roads.

Various research studies have contributed greatly to the reduction of accidents on the trunkline system. These studies are carried on constantly, not alone to determine safe road surfaces, but in the design of roads and intersections; in material, color, durability and visibility of our signs; in the proper placement of signs and the

proper treatment of conditions with signs and pavement markings. Then, too, this same research is continued into the field of "special studies" such as speeds, volumes, intersections, day and night, before and after, parking, etc. Such studies usually indicate what is wrong with highway accident locations and simplify the action necessary for their correction.

We realize that many of the counties have done an excellent job in making their roads safer and that many carry on such research studies as those mentioned above. However, it is believed that a greater use of these studies by all the county organizations will produce like results on the county roads. It is further believed that standardization of traffic control devices will produce greater uniformity on the county roads as it has on the trunkline system, contributing immeasurably to the reduction of all types of accidents. To this end the State Highway Department has developed a "Michigan Manual of Uniform Traffic Control Devices" with which you are all, no doubt, familiar. It is suggested that this Manual be used frequently to the end that we get a standardization of the use and placement of signs, road markings, etc., on both systems.

Finally, too much emphasis cannot be placed on the driver himself for the poor showing in the improvement of the general safety picture regardless of the system. All three agencies involved in the promotion of greater safety—Engineering, Enforcement and Education — are actively engaged in this work and have made definite progress. All of this will be wasted unless the individual driver takes it upon himself to be responsible for his actions while driving. It is in this field that we will make the greatest progress in the shortest possible time in the crusade to save lives and reduce personal injuries and property damage. We invite both the county and city officials to join with us in making use of any available information, methods, results of studies, statistics or whatever else we have which might help them in their safety problems. A mutual understanding of these problems can only have one result—finer, safer highways and roads for the State of Michigan.

An original article by A. F. Malo, Acting Traffic Engineer, Michigan State Highway Department. Presented at the 27th Annual Highway Conference, University of Michigan.

BETTER ASPHALT ROAD SURFACES

Made Possible By Bituminated Filler

By BRUCE D. GREENSHIELDS

THERE has recently come to my attention a new road building material with unique properties of particular interest to the traffic engineer. Its uniqueness is not in its ingredients of stone dust and bitumen which have long been used in road construction, but in the fact that these ingredients are combined in a dry powder almost as fine as the original dust. The homegeniety of the mixture and its form permit it to be applied to an aggregate of larger particles such as sand and gravel in such a way that the new mixture is also intimate and uniform. The components are thus allowed to display their serviceable properties so effectively that, according to reports, new standards for a non-skid, non-glare road surface are possible. The process and the apparatus involved are the invention of Dr. A. Sommer, 113 W. 57th Street, New York City, affiliate member of the A.S.C.E.

The method of manufacturing the bituminated filler is interesting not

only because it is new but because it was evolved in an attempt to obtain a material with properties that were known to be desirable. The material while new to the United States has been used rather extensively the last three or four years in Switzerland and in France. Its advantages can be more easily understood if the peculiar functions of a binder and of a filler are considered first.

The Functions of Binders and Fillers

While filler, as the name indicates, was originally added to bituminous pavements simply to help "fill" voids, it is now known that the presence of mineral particles distributed in bitumen brings about a substantial improvement in the behavior of the bitumen. Parallel with increased stability against mechanical impacts, the consistency remains within narrow limits when subjected to wide changes of temperature. (1) and (2). A classical example of filler action is Trinidad Asphalt which contains about 46% of natural filler. It is known for its resistance against atmospheric influences, its "healing" power and its high stability.

In a bitumen mixture, the bitumen should never be thought of as a structural element like stone, cement, iron or wood, for by itself it has little or no stability against physical stresses. Its use is based, almost exclusively, on its ability to bind or cement together the mineral or rigid components of an aggregate.

In order to avoid the structural weakness of bitumen and at the same time take advantage of its cementing properties a bituminous mortar must be prepared with a minimum of binding material spread over a maximum surface. The largest surface is presented by a finely comminuted aggregate such as stone powder. But before the introduction of the new process it was difficult, if not impossible, to spread bitumen uniformly over the surfaces of individual fines and thus produce a homogenous system in which there were no nests of either component. What is true of the fine particles is also true of the larger particles of the aggregate. Each particle must be uniformly coated with the binder but without excess in order to avoid structural weakness.

Description of the Process and Material

The new method consists of mixing the two components, powder and bitumen, pneumatically, by "Atomization." This is accomplished by intermingling the components while suspended and propelled by compressed air. The mixture, while hot, is taken off and cooled in suspension, and subsequently collected in powder form by dust separators or cyclones. In the words of Prof. P. Schlaepfer "A process, originally introduced about 1935, by which such a pulverulent mixture of mineral filler and highly dispersed organic binder can be produced, employs means by which the mineral dust can be blown into a cloud and in that state mixed with a second cloud produced by the atomization of liquefied bitumen or tar. In this atomization process, particles of the liquefied organic binders become attached to particles of filler, which they envelop either partly or wholly or vice versa."

In the bituminated filler as it is produced and delivered from the machine, the bitumen is inactive so far as its cohesive property is concerned. It is distributed within the pulverulent mass in the form of microscopic globules, somewhat as in an emulsion. Before this inactive product can be-

(1) According to statements by Prof. P. Schlaepfer found in "Experiments with Bituminous Pavements, with Special Reference to Tar as a Demand of the Present Time," an official report by A. Sutter, Chief Engineer of the Canton of Grisons, Switzerland, published in "Strasse & Verkehr," the official organ of the Swiss Highway Engineers; and in

(2) "Investigation on Bituminated Filler," by Prof. P. Schlaepfer, Road and Traffic, 1938.

come a binder it must be made active or sticky. The "activation" of the bitumen is accomplished either by heating or by the addition of small amounts of solvent. The binder liquefied by one of these agents, spreads throughout the system to coat and bind together the structural aggregate.

Experience with Bituminous Pavements

The behavior of roads constructed with the bituminated filler is reported in an official report by S. Sutter, Chief Engineer of the Canton of Grisons, Switzerland, published in "Strasse and Verkehr," the official organ of the Swiss Highway Engineers.

The Swiss Federal Council, in a circular letter dated October 24, 1939, and directed to the cantonal (state) governments on "the use of standardized road tar in Swiss road construction, called attention to bituminous pavements built by the State of Grisons in the last few years. The construction was along the principle of tar-asphalt concrete low in voids, and which contained a binder consisting of 67% of standardized road tar and 33% of asphalt bitumen applied in the form of bituminated filler.

The circular letter states that owing to the non-skid characteristics of these pavements, they may be used on grades up to 10%. The action of the Swiss Federation was prompted by the necessity to increase the consumption of road tars made from crude tar produced in Switzerland. The letter stated further that it was necessary to overcome certain prejudices against the use of road tars. These prejudices were due to many failures in the past. These, however, were due to uncertainties in the qualities of the tar and the manner of applying. These uncertainties no longer exist.

The method of construction finally selected was that developed by Prof. Schlaepfer for reconstruction of the Julier Pass Road. Two hundred ninety three thousand square meters were laid. The tar-asphalt pavement of 3 cm. thickness (about 1⅛ in.) were "very good indeed, regarding quality as well as economy."

The chief requirements for a pavement under their conditions were declared to be: evenness of the surface, no waves, and non-skid characteristics without glare.

Regarding unevenness, it was stated that excess of binder was the main cause. Owing to this fact the tendency is to reduce the binder content, but that "represents a particular danger with us, as absorption of water would destroy our pavements through frost action."

The specifications adopted were as follows:

1. Mineral aggregate
   Granulations:
   - 0-1 mm
   - 1-3 mm
   - 3-5 mm
   - 5-8 mm

   The percentages dependent on materials
2. Bitumen only in form of bituminated filler
3. Tar, viscosity 30-70 sec.
4. Max. voids, 10%, usually 5-6

It should be mentioned that the method of applying the tar and asphalt consisted in first coating the stone particles with tar in the ordinary way and then adding the necessary quantity of asphalt bitumen in the form of bituminated filler. The mixture produced contained about 6.25% of binder the latter composed of about 70% tar and 30% asphalt bitumen.

Cost is always of primary consideration. A report by A. Sutter, Chief Engineer of the Canton of Grisons, Switzerland, Coire, Feb. 24, 1938 on "Road Surfaces of Bituminated Filler Constructed in 1936-37 in the Canton of Grisons," has this to say of costs:

"Experiments with various kinds of pavements which have been made in the Grisons during a number of years permit us to state that we obtained the best results, with regard to first cost, cost of maintenance and rough-

ness (non-skid) of surface, by the use of bituminated filler."

It is not expected that costs in America would exactly parallel those in Switzerland, for labor and material prices are different, but the results in Switzerland prove that serious consideration should be given to the possible use of the material here.

The success of bituminated filler abroad warrants a study of its possibilities in the United States. There is being constructed at Brooklyn Polytechnic Institute a machine for making the filler. We expect to make our first experiments with the material this summer.

An original article by Dr. Bruce D. Greenshields (Assoc. I.T.E.), Prof. of Highway Engineering, Polytechnic Institute of Brooklyn,

PARKING LOTS

By E. S. Clark

FIRST let me open this discourse by quoting from an article in Public Management, January, 1941, written by Burton W. Marsh, Secretary of Safety and Traffic Engineering Department, American Automobile Association, Washington, D. C., in which he says, "The major cause of present parking difficulties is the increase of the number and use of motor vehicles. The number has increased over 4,000,000 or 13 per cent since 1930. In the same period, the average miles driven per year has increased from less than 7,000 to over 9,000, or approximately 28 per cent. Furthermore, a large majority of automobile trips are in and near cities. Also, the rates of urban to rural population has been steadily increasing."

Cities must decide what their objectives are before they can deal with the automobile parking problem effectively. In arriving at this decision, consideration should be given to the possibility of stopping the fast descending values of property in certain so-called blighted areas in the central business districts.

Among the other numerous factors to be considered are parking time requirements, accessibility to lot from the present streets, the influence of parking lot on traffic flow and street use in the area, size of the lot, location of lot to the blighted area. Only temporary and makeshift remedies can result unless these and other elements are understood, studied and treated.

In my opinion, most public officials and interested citizens have reached the conclusion that no matter what your curb regulations are the demand for off-street parking lots remains the same.

While the number of cars has increased yearly, the number of curb parking spaces has decreased by a much greater percentage, owing to the continual reservations made for corner restrictions, transportation stops, etc. In many of our larger cities, the average is only a little over one legal parking space along the curb for each establishment.

In cities of from 50,000 to 100,000 population there are four or more cars parked off street to the one parked on curb; necessarily this means the greater part of the shopping is done by off street parkers.

It is quite apparent that there are three types of parking demand. *First*, is that of a brief stop; for loading or unloading passengers or merchandise. In this type there is a high turnover. *Second*, is the short term parker, say up to one hour or very seldom more than two hours. *Third*, is the long time parker; who may be an employee in the business district, or an all day shopper. It is desirable to make as much provision as possible for the first

two types, but the third should find off-street private parking space.

When we consider that only approximately 350 cars can be parked along the curb in a mile of street it is self evident that off-street parking is the only solution.

I do not wish to enter into a controversy regarding whether or not these lots should be municipally or privately owned. I do however think that there should be some guarantee of permanency in order that these locations may not be utilized for enterprises and thereby taking away the advantages gained by local merchants while used for parking.

We in Kalamazoo, in the fall of 1939, opened a municipal parking lot with a capacity of 390 cars known as "Shoppers Parking Lot." The above mentioned property was purchased in the spring of that year and the buildings were removed and the lot surface treated and driveways placed. This was done at a cost of little over $60,000. This was assessed against the property where it was thought the greatest benefits would be derived. It must be understood, however, that all the benefits are not within this assessment district. In arriving at this assessment district, it was studied by our Assessor with a group of twenty-five or more interested citizens, and when our Assessor definitely decided on the properties that should contribute to the purchase and development of the lot, then it became necessary to determine in what proportion the various properties should be assessed. With this same aid the Assessor decided that there should be three zones known as A-B-C; knowing that Zone "A" would receive more benefit than Zone "B" on account of its location; and the same applies to "B" and "C" when the Zones were established. It became apparent that ground area and assessed valuation each played an important part in trying to arrive at an equitable assessment, because in some instances we had a high structure with a very small ground area; and in the other cases there was a large ground area with an inexpensive building. After considerable study, the Assessor arrived at a decision to place 50% on area and 50% on assessed valuation; after first determining the amount to be assessed against each Zone.

This parking lot was developed primarily for the business in a fast disintegrating area principally on account of the lack of parking accommodations. The underlying thought of the owners, as well as the City Officials, was to stop this disintegration and increase the valuation and at the same time retard decentralization. In order to operate this parking lot to the best interest of the property owners, who are paying the first cost of property and improvements, there was set up, by resolution of our City Commission, an advisory board to the City Manager a committee of five property owners having property within the assessed area. The City and property owners having the same purpose in mind made certain rules for the use of same, the greater the number of shoppers, the greater the value of the lot; and when I say shoppers, it is my thought that any individual who calls on doctor, lawyer, dentist, real estate dealer, etc., is considered to be a shopper. This committee along with the City Manager decided that a two hour parking limit should be established as free, the next hour to be 10c and each additional hour 5c. We keep three attendants on during the hours from 8:30 A.M. to 6 P.M. The hours between 6 P.M. and 8:30 A.M. being free.

The nearest point of our lot is located approximately 700 feet from the main corner of the city and extends 550 ft. north along the rear and abutting stores that have their front entrances on the east side of a street 132

ft. from nearest point of the lot. In my opinion, the location of this type of parking lot is very essential, and its degree of success to the property owners who pay for its purchase and development will depend on the choice of location.

One year of experience indicates that the income will slightly exceed the cost of attendants. Any other expenses such as: lighting, water, or other maintenance will have to be borne from taxes. In our case this is justified by stabilization of property value or increased valuation. Another thing we have found is that less than 15% of the users of this lot pay for parking.

Our citizens, who are interested in the parking problem, are definitely for private ownership of most everything, but are as firmly for public ownership of parking lots, on account of their permanency.

With the present improvement of streets all leading to the central business areas it makes a very definite challenge to the public official which must be met and solved or we will have to admit failure; and with failure, decentralization is certain to follow and along with it will come loss in investments and assessed valuation.

One of the things we should all strive for is sufficient permanent parking lots located around and through the entire central business area so as to assure all of the merchants sufficient parking places for their customers.

An original article by E. D. Clark, City Manager, Kalamazoo, Michigan. Presented at the 27th Annual Highway Conference, University of Michigan.

FURTHER IDENTIFICATION OF U. S. OR THROUGH ROUTES BY MEANS OF PAVEMENT STRIPING AND MARKING

By BERNARD C. HARTUNG

NOW that we are attempting to "streamline" traffic throughout the entire country, the thought occurs to us that it might be advantageous to consider the *further identification* of U. S. or through routes in metropolitan or suburban districts and even in towns of lesser population. Up until the present time, most of the states and communities have done a fairly acceptable job of labelling these routes by means of roadside and curb signs. However, with the added volume of traffic, construction of multi-lane highways and increased speeds a good percentage of the value of these signs or markers has been lost. This may be best illustrated by pointing out the following facts:

1. In many instances, due to roadside objects, trees, buildings, commercial signs, etc., it is impossible to secure a location for the signs that will permit visibility at all times.

2. Due to the speed and volume of traffic at most locations the driver has very little opportunity to glance to the side of the road for these guide signs.

All this leads us up to the point at hand, namely, that a distinctive method of striping or marking of pavements in such districts as mentioned above might aid greatly in meeting this problem. This could be accomplished by the application of centerline stripes, either yellow or white, broken or solid. These would be applied in such a manner so as to not be confused with the present treatment (striping) of rural highways or city thoroughfares (two-lane to mul-

tiple-lane). Several methods could be considered subject to, let us presume, the approval of the American Association of State Highway Officials and the National Conference on Street and Highway Safety. Some of these are as follows:

1. The use of a solid yellow line, preferably 6" in width, to designate all regular U. S. Routes. In the states of Oregon, Washington, Idaho and Maryland, where yellow is used as a normal center line color on all highways, this stripe could be applied in white.

2. Use of a broken yellow line to designate Alternate U. S. Routes through cities or communities.

If the above did not meet with general approval the following methods might be considered:

1. Use of a double yellow stripe, each line 4" in width, to identify U. S. Routes in settled areas.

2. Use of a solid single yellow line to designate Alternate U. S. Routes in such areas as described above.

We do not believe that it would be practical to use any other colors than yellow or white due to the fact that such colors do not produce the necessary contrast.

The question immediately arises as to what happens when these U. S. or through routes intersect or, in some cases, overlap each other. In our minds, this can be taken care of in the application of large figures plus arrows on the pavement designating the numbers of the routes which traverse each other and the directions which these routes take. When two routes follow the same street or thoroughfare for a number of blocks or even for a distance of a few miles, it would be necessary to properly identify the turning points of these routes, i.e., where each leaves the other by means of the aforementioned numbers. It is also recommended that present sign treatment be continued for the purpose of supplementing the markings as described above.

During the winter months conditions in certain localities will be encountered which will result in the pavement markings or stripes becoming partially obscured. The roadside or street signs will then be of considerable value in traffic guidance. The thought must be kept in mind, however, that this period of unfavorable weather is also one in which traffic volumes are relatively small, particularly out of state or transient traffic.

Perhaps the best method of ascertaining the value of such striping or marking treatment would be for a number of the states to install experimental sections. Some localities have done this already; a few with favorable results and others with apparently unsatisfactory reactions. In the latter instances, the conclusions reached were that centerlines should be used for only one purpose, i.e., a division of traffic moving in the opposite direction. Also, it was contended that the entire expense involved in such a procedure would fall upon the state department sponsoring such a movement; this despite the fact that most incorporated cities throughout the country are responsible for the maintenance of the highways running through their particular sections.

Naturally, it will be necessary to weigh the advantages against the disadvantages of such a treatment. However, it is reasonable to assume that traffic and motorists generally will be benefited by such methods of improving the identification of main highways. If this is the case, the proposition, in its entirety, would be *justified.*

An original article by Bernard C. Hartung (Jun. I.T.E.), Assistant Maintenance Engineer, In Charge of Traffic, State of Nevada, Department of Highways.

REVIEW OF I.T.E. TECHNICAL BULLETIN NO. 1

By THEODORE M. MATSON

TECHNICAL REPORT NO. 1, entitled "Adjustable Face Traffic Control Signal Head Standards," truly can be considered a milepost in the development of the traffic engineering profession. It is significantly marked Technical Report No. 1, thereby certifying that it is the first step which the Institute, as a body, has taken into the entire field of techniques which abounds in this new profession.

This first step into the technical phases of our work, dealing with standards as it does, assuredly sets a high standard for subsequent technical reports. The Institute as a whole owes a debt of gratitude to the excellent work which Mr. McNeil, Mr. Brandes and their committees have performed in the service of their profession.

It is the purpose or function of standards to form a basis for comparison and judgment. Such quality implies a recognized and permanent value in itself. The Signal Head Standards of Technical Report No. 1 truly accomplish this purpose. They have been especially drawn in such a manner as to set forth purchase specifications. Hence they will serve also as a measuring stick for public purchasing agents. They, moreover, assist the manufacturers of signal equipment by unifying the quality and variety of their product. And finally, the public itself should reap the benefits of standardized signal heads—a long sought objective in uniform traffic control devices.

The adoption of signal standards is timely. The years of experimentation which are behind us have formed an adequate basis for stabilization; and while standardization is fraught with fixation, the values to be gained at this time outweigh the advantages of unrestrained experimentation on the public thorofares. It should be noted that the developments of signal standards in the railway field have been utilized, and the experience in railway operation has been given full recognition in the development of the present standards. Moreover, the specifications meet with the approval of the National Electrical Manufacturers Association and their advice presumably was weighed at the time the standards were adopted. Thus, it is seen that at this time there has been a natural coordination and manifestation of joint effort which represents a considerable number of years in the diverse fields which influence traffic signalling.

The standards deal with practically all phases of the signal head. Housing, doors, gaskets, lenses, reflectors, lamp receptacles, wiring, visors, supports, finish, mounting methods, and a supplement on "WALK" and arrow lenses have all been dealt with in varying degree.

Perhaps the most accurately drawn portion of the work deals with the transmission and colorimetric values of the lenses. The units of measurement which are employed, the techniques of test and measurement, and the standard glass numbers and deviations permitted are all quite foreign to the traffic engineer. However, these values of color, transmission, and distribution of light give the most accurately defined values which the driver sees and by which he is guided. It is interesting to note that from 40 to 100 watt lamps are indicated as light sources. While the light distribution pattern is clearly defined and measured the diameter of the lens and reflector has been left open.

In closing, it is not without interest to note that Aluminum alloys for housings, and Alzak aluminum for reflectors form an important part of the specifications. Perhaps our efforts in national defence will temporarily disqualify these sections of the work due to priority lists of aluminum use, and the non-ferrous clauses will be changed.

(An original article by T. M. Matson (Mem., I.T.E.; Mem. I.T.E. Bd. of Direction), Prof. in Traffic Engineering, Yale University, New Haven, Conn.)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

155 EAST 44TH STREET · NEW YORK · N.Y. · MURRAY HILL 2-1500

May 13, 1941

Mr. W. C. Brandes, Chairman,
Standards and Specifications Committee,
Institute of Traffic Engineers,
Chicago, Illinois

Dear Mr. Brandes:

You have been advised that the Traffic Signalling Section of the National Electrical Manufacturers Association has approved the ITE specifications on adjustable face traffic signals, which we believe have been designated by ITE as Specification No.1.

Our committee now takes pleasure in notifying you that NEMA has formally accepted your specifications, but we must call your attention to the fact that the Traffic Signal Industry, as a whole, will not be able to comply with the ITE specifications until it has had time to readjust itself and retool for new parts made necessary by your specifications. Some traffic signal manufacturers will have to obtain new lenses, others will have to obtain new reflectors, and still others will have to obtain both lenses and reflectors.

Furthermore, the ITE specifications as written definitely call for aluminum or other nonferrous materials for the cases, doors and hoods. Again the Traffic Signalling Section of NEMA must accept these specifications with reservations dependent upon our ability to secure aluminum. On this point there is no assurance whatsoever that they will be able to get a sufficient supply of aluminum. At the present time, some manufacturers are making all removable visors of sheet steel and control cabinets of either iron, steel or aluminum, depending upon their ability to get aluminum.

The Traffic Signalling Section of NEMA can, therefore, accept in principle the Specifications as written for ITE, but strict compliance therewith cannot be immediate. Time must be allowed for obtaining new molds for lenses and reflectors, and this raises the question of the availability of die and tool makers. Material supplies are beyond the manufacturers' control.

Very truly yours,

Committee on ITE Specifications

By Ted Mackay
Chairman

Approved by
Traffic Signal Section
W. Foster Shy
Chairman

President E. G. SMITH
HOWARD E. BLOOD
Vice Presidents
F. W. MAGIN
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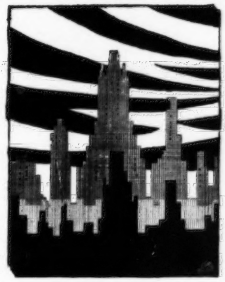


Stop, Look and Listen

President Hawley S. Simpson announces the appointment of Leslie Williams (Jun. I.T.E.) as Assistant to the Editor of TRAFFIC ENGINEERING. Mr. Williams is Director of Planning and Traffic for the Civic Planning and Traffic Board of Providence, R. I., and has had a broad experience in journalism. He will assume those duties in connection with the editing of the magazine that Editor Tipton cannot handle during his service with the United States Government in a National Defense consulting capacity.

I.T.E. Takes Pleasure

In announcing the appointment of Professor Charles J. Tilden as Corresponding Secretary to relieve Mr. Graham Cole of the growing burden of work entailed in the office of Secretary-Treasurer of the Institute.

Prof. Tilden assumes his office with a long and wide experience in traffic engineering and its related fields having served on the engineering staffs of Harvard, Cornell, University of Michigan and Yale. He is a member of the Connecticut Highway Safety Commission and President and Director of the Eno Foundation for Highway Traffic Control, Inc.

The Institute is fortunate in having Prof. Tilden serve as Corresponding Secretary and extends to him its best wishes.

Membership Applications

Charles Francis Cashell
Junior Engineer, Department of Vehicles & Traffic, 451 Pennsylvania Ave., N.W., Washington, D. C.
Home Address: 1239 Monroe St., N.E., Washington, D. C.

Harry Donald Kamy
Captain, Corps of Engineers, Engineers Board, Fort Belvoir, Virginia
Home Address: 114 No. Washington Street, Alexandria, Virginia

Let's Do It Again!

The National Safety Council urges in this time of "unlimited emergency" full cooperation of the members of the Institute in its nation-wide campaign during the Independence Day celebration and throughout July.

Despite the plea for "gasless Sundays" it must be remembered that this is only *voluntary* and that by July 1st, 5,000,000 new cars will be on the road, augmenting the recent defense travel.

The Institute has pledged its full cooperation and asks all of its members to demonstrate the value of Traffic Engineering by checking the steady upward surge of accidents.

July of 1940 was the only month in the past eighteen to show a decrease in traffic deaths. We did it last July, let's do it again!

Reports and Publications

YOUTH'S GUIDE TO SAFETY, Leon R. Brown and Mary Margaret O'Connor, Scribners, 1941.

Under this title, a book jointly written by Leon R. Brown (Mem. I.T.E.) and Mary Margaret O'Connor, teacher of safety education, John Marshall High School, Rochester, New York, has just come from the press.

Written as a textbook for use in junior and senior high schools, the book deals fully with all safety matters; home, school, factory, traffic, transportation, recreation, fire prevention and first aid.

Profusely illustrated with pictures which will appeal to the school child and written in a simple and easily understandable manner, the book should find a merited place in educational institutions of this country.

Each chapter is followed by a schedule of activities in which the class may engage and which will bring home the points made in the chapter, together with a list of questions to serve for review purposes.

Co-author Brown was president of the Rochester Safety Council in 1932 and has conducted 13 traffic surveys in Rochester for the Rochester Engineering Society. He served as chairman of the Chamber of Commerce Fire Prevention Committee, is a graduate Red Cross first aid instructor and has written a number of articles on technical phases of safety. At the present time he is Director of the Citizens Traffic Safety Committee and previously has served as secretary to two City-Manager-appointed Citizens Committees on Traffic. He is employed by the Rochester Transit Corporation as safety and research engineer.

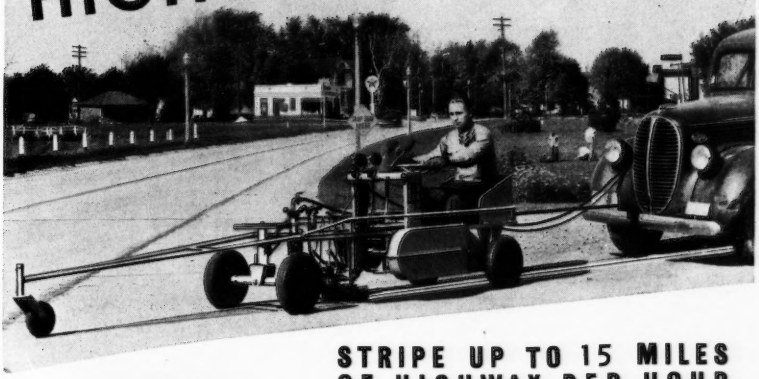
PREVENTION OF NIGHT TRAFFIC ACCIDENTS. This pamphlet has been prepared by the Committee on Night Traffic Hazards of the National Safety Council. Throughout its 23 nicely illustrated pages the effect of visibility on accidents is indicated and numerous accounts of accident records are compared showing the accident experience before and after changing visibility conditions.

PERSONNEL-MOTOR VEHICLE ADMINISTRATORS AND STATE TRAFFIC ENFORCEMENT OFFICIALS. This multigraphed pamphlet is published by the American Association of Motor Vehicle Administrators and outlines the officers of the American Association of Motor Vehicle Administrators, naming also the members of the executive staff in Washington, D. C. of this organization. A complete list of the personnel of the Motor Vehicle Department of every state in the union is covered. In addition, those individuals engaged as State Traffic Officials in Canada are listed also.

STANDARD HIGHWAY SAFETY PROGRAM FOR STATES, published by the Automotive Safety Foundation. This, the third printing of this 19 page beautifully illustrated pamphlet deals with the setting up of a standard highway safety program for states endorsed by the Automotive Safety Foundation and fifty national organizations engaged in safety work. This program is based on practices which have been proven by experience and is presented as a working guide for effective street traffic safety methods.

SPEED REGULATION AND CONTROL ON RURAL HIGHWAYS. This 87 page booklet is published by the Highway Research Board of the National Research Council and is the report of a special investigation by Raymond G. Paustian, who is research engineer for the Highway Research Board. This report deals with the result of a special investigation of measures so far used in the various states to regulate and control the speeds of motor vehicles on rural highways in the interests of safety to the vehicles and pedestrians.

Speed-up HIGHWAY MARKING



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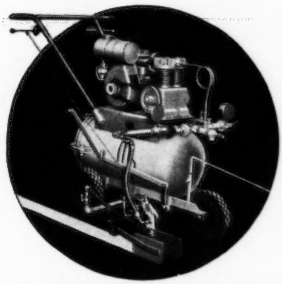
The M-B Automatic Marker (shown above) can handle EVERY type of traffic line marking job. Stripes center lines and "no passing" lines—single, double or triple—solid or intermittent—one color or two colors—in any desired combination—and it does the job accurately and safely. Assures uniform, clean-cut lines. No "mist." Saves 15% to 20% of material, compared to other methods of marking. Write for Bulletin No. 113.



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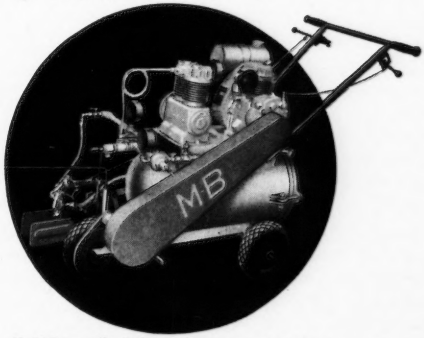
STREET MARKERS

Compact, versatile machines for all types of traffic striping jobs: Center lines, parking areas, cross walks, safety zones, etc. Can also mark athletic fields, airports, tennis courts, playgrounds, etc. Quickly convertible to all-purpose paint sprayer. Easy, one man operation. Write for Bulletin #112.



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OH SAY CAN YOU SEE? published by the New Jersey State Highway Department, is a detailed report on the New Jersey State-wide Safety Lighting Program by E. R. Sherbaum, electrical engineer for the New Jersey State Highway Department. Throughout the 19 profusely illustrated pages of this pamphlet the reader will find the summary of what has already been accomplished in eliminating night accidents and fatalities on New Jersey highways. Also will be found a report on the detailed program and methods through which it was possible to put these life-saving facts on the records.

ROADS LEADING NORTH is a series of film slides in natural color produced by the Bureau for Street Traffic Research of Yale University in cooperation with the Connecticut State Highway Department. These slides present an aerial story of the Merritt Parkway, one of America's outstanding limited-way parkway systems. As a service to the engineering profession, the Bureau for Street Traffic Research is maintaining in its library several sets of this presentation which are loaned without charge except transportation to traffic and engineering organizations.

1940 TEXAS HIGHWAY ACCIDENT FACTS presented by the Texas Highway Department. This pamphlet is beautifully illustrated with a number of very fine drawings and charts which graphically indicate what the Traffic and Safety Division of the Texas Highway Department has done during 1940 toward compiling traffic accident statistics. The statistical data

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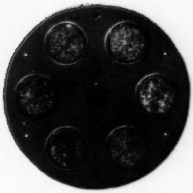

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used in this report covers primarily the rural mileage of the Texas Highway System.

1940 ANNUAL REPORT OF TRAFFIC ENGINEERING ACTIVITIES IN FLINT, MICHIGAN. This report is prepared by Henry W. Osborne (Assoc. I.T.E.), traffic engineer for the City of Flint. This 47 page pamphlet, nicely illustrated with charts and photographs, describes many of the outstanding phases of work completed in the past year by the traffic engineer. The report deals with the Functions, Organization, and Personnel of the Division and a report on Traffic Signals, Traffic Signs, Pavement Markings, Planning, and other activities.

REPORT OF TRAFFIC ACCIDENTS DURING 1940 produced by the Department of Streets and Sewers of St. Louis, Missouri and prepared by Joseph J. Feuchter (Assoc. I.T.E.), who is traffic engineer for the City of St. Louis. This handsome 110 page volume, graphically and statistically gives every detail on the traffic records of the City of St. Louis during 1940. Fundamental data has been arranged in various forms so that through careful analysis conclusions are reached for the study of the city administrators.

TRAFFIC ACCIDENT FACTS AS PRODUCED BY THE DEPARTMENT OF MOTOR VEHICLES FOR THE STATE OF CONNECTICUT. This handsome volume, 135 pages, presented by Michael A. Connor, Commissioner of Motor Vehicles, presents the 1940 review of Connecticut traffic accident experience. Included therein is a compendium of traffic accident data shaped into such comparable tabulations as seemed essential, that would prove informative and instructive to state and local police, traffic accident prevention agencies of all types, the schools engaged in traffic safety education and to the average citizen interested in street and highway safety.

Sixteen States Cooperate In Defense Tax Measure

Sixteen states will follow the federal example in granting special tax concessions to defense contractors by allowing accelerated depreciation rates on special defense facilities built or acquired, the Federation of Tax Administrators said today.

"The purpose of these allowances is to speed defense production by offsetting the risk involved in constructing facilities which might be useless for peacetime production," the Federation said.

"The effect of the special rates is to reduce corporate income taxes paid by defense contractors," according to the Federation. The depreciation allowance is included among deductions from total income in determining the amount of taxable net income.

Under the federal procedure, a defense contractor may secure a certificate—from the War or Navy department, the Treasury and the National Defense Advisory Commission—stating that the facilities he proposes to build or acquire are necessary for emergency defense purposes. If the certificate is obtained, the contractor may amortize the cost of the facilities at the rate of 20 per cent yearly.

As an example, the Federation said, the normal rate of depreciation on a $1,000,000 factory building is about 2½ per cent, or $25,000 a year, which is not taxed. The 20 per cent accelerated depreciation rate would raise this untaxed figure to $200,000 annually, allowing the cost of the factory to be written off in five years instead of about 40 years.

Among the states which have indicated that the same privilege will be extended under their income tax to contractors holding defense certificates are: Arkansas, Georgia, Kansas, Kentucky, Louisiana, Massachusetts, Mississippi, New York, Oregon, South Carolina, Tennessee and Virginia.

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South Dakota has indicated it will grant the privilege when a specific case arises for consideration. Three other states—Connecticut, Pennsylvania and Vermont—are among those which use the net income tax and, therefore, may be listed among the states where special allowances may be obtained.

Legislative action may be necessary to make the concession in some states, including California, Maryland and Minnesota, the Federation said. In Utah, the tax commission has recommended that the legislature consider amendments to the income tax which would grant the allowance.

Sodium Lights To Be Installed in Lackawanna, N. Y.

Will Provide Safety Illumination for Route 5 Passing Through the City

Sodium safety lights will illuminate the Hamburg Turnpike (Route 5) as it passes through the city of Lackawanna, N. Y., according to the terms of a contract recently concluded with the Buffalo Niagara Electric Corp.

Forty-two luminaires developed by engineers will be installed on both sides of the thoroughfare, 250 feet apart and staggered. These will be of the open type, with 10,000-lumen lamps and airplane shaped reflectors.

The property line of a large mill of the Bethlehem Steel Company parallels the turnpike on one side, while business places and residences occupy the other side.

The installation is one of a growing number of sodium lighting systems in New York State. Similar lighting is in operation outside Buffalo, Syracuse, Rochester, Binghamton, Utica, Schenectady, and Albany, and in New York City. The largest of these is also the world's largest sodium lighting installation and is in operation on the Belt Parkway, running from Owl's Head Park in Brooklyn to the Bronx-

Whitestone Bridge in Queens, about 35 miles.

Cities Find "Dead-end" Streets Useful In Residence Districts

Dead-end streets, once shunned by cities that would be well-planned, now are considered desirable in residence districts, information in a study on subdivision control from Public Administration Service showed today.

Dead-end, or cul-de-sac, streets used to be unpopular, the study said, mainly because they often occurred where through streets were needed for traffic circulation, or they were not provided with adequate turnarounds for vehicles.

"Today, properly located and designed dead-end streets are recognized as desirable streets on which to live, particularly because they are free from the noise and hazards of through traffic," the study said. Radburn, N. J., especially designed as "the town for the motor age," helped popularize the cul-de-sacs, it was pointed out.

Among cities which have repealed regulations once prohibiting dead-end streets are Rochester and Syracuse, N. Y. Though not entirely approving such streets, El Centro and Santa Barbara County, Calif., Richmond, Va., Dubuque, Ia., and Pittsburgh, Pa., permit them under certain conditions. Their ordinances specify, however, that the streets have adequate traffic turnarounds at their ends.

Other communities permit cul-de-sacs in residence districts if the streets are purely local. Among these are Lake County, Ill., which requires that dead-end streets serve no more than 10 lots, and West Allis, Wis., which allows them to serve only 20 lots.

A number of communities permit dead-end streets wherever the normal arrangement of through streets is not practicable because of such barriers as steep bluffs, rivers, railroads and closely built-up industrial districts.

Thirty-five cities set a maximum on the length of dead-end streets—usually 400 or 500 feet, according to the study. A few cities specify minimum width requirements, from 30 to 50 feet. Space for turnarounds is specified in various municipal regulations to have a radius of 20 to 60 feet.

Parking Meter Violators Get Five-Cent Fines

Police of West Palm Beach, Fla., report they have hit upon a way to correct parking meters violations yet keep offending motorists happy. When a first offense violator appears at police headquarters in response to his summons, the police sergeant asks contribution of the nickel that should have gone into the parking meter as settlement of the "fine."

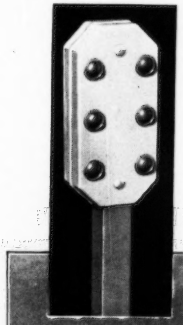
The nickel "fines" bring in $40 to $50 a month, according to the report to the Municipal Finance Officers Association of the United States and Canada. West Palm Beach uses parking meter revenue for traffic control, police salaries, safety signs, traffic lights and the police-radio system. The meters have brought income of $38,219 since January, 1939.

Toledo Children Follow Special Maps for Safe Routes To and From School

Schoolchildren of Toledo, Ohio, follow special "school route" maps on their way to and from classes to escape the traffic hazards of heavily used streets and unprotected crossings, the American Municipal Association reported today.

The maps, provided by police and school officials, outline for each child the most direct safe route from his home to his school. The child studies the map with the assistance of his teacher, who points out hazards to avoid.

About 38,000 of the maps have been distributed to the children. They were drafted after a traffic-planning survey to determine hazardous areas.



Showing the Way

TO SAFER HIGHWAYS *at Night!*

CATAPHOTE
REFLECTOR BUTTONS

Here's more evidence of the nation-wide acceptance of Cataphote Reflector Buttons. After tests proved greater brilliance and durability of Cataphote Niteway Outliners, they were installed along the Pennsylvania Turnpike, as shown here. In the far West, Cataphote Lane Markers were chosen for the San Francisco Bay Bridge and the Golden Gate Bridge. Depend on Cataphote Reflector Buttons for *permanent reflection . . . greater* safety! Write for more facts.

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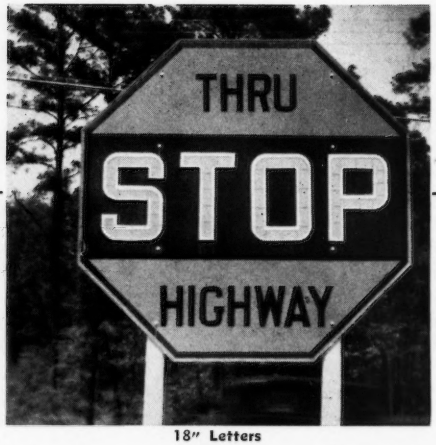

Maximum visibility - night or day - a safety sentinel to any oncoming driver.

Weather - proofed to withstand the climatic conditions of every state in the Union.

18" Letters

ONE PIECE - FULL STROKE GLO-LITE REFLECTORS

- Improved Legibility
- Reduced Installation Cost
- Low Maintenance Up-Keep

GOTHARD MFG. CO., SPRINGFIELD, ILLINOIS

Momentum

T. J. Seburn (Mem. I.T.E.), Traffic Engineer of Kansas City, Mo., explains in a concisely written article in Public Safety for May, 1941, the factors responsible for Kansas City winning a Grand Award in the National Safety Contest for the second consecutive year.

His investigations revealed that two of the primary reasons for obedience to traffic laws were fear of arrest and the citizen's realization that the rules were fair and based upon engineering study.

Secondary influences included police courtesy and accident prevention programs, reduced speed limits for night driving, constant safety reminders through local press and radio, and a City Safety Fair.

A large measure of credit is given to the truck driver, who knows that safety means better jobs and working conditions; and also to the school safety training program, which is now bearing fruit in the form of safer motorists after graduation.

Northwestern Announces Fellowships and Scholarships

Lieut. F. M. Kreml (Affil. I.T.E.), Director, Northwestern University Traffic Institute, Evanston, Ill., announces that the Kemper Foundation for Traffic Police Training has made available eight scholarships of $300 each for municipal police officers during the 1941-42 academic year.

Recipients of these awards receive thorough training in traffic control and accident prevention.

Lieut. Kreml will appreciate your assistance in calling the Kemper awards to the attention of police officers in your area.

Looking Ahead

June 25-26, Buffalo, N. Y.

Western New York Safety Conference, Inc., and Exhibit, Hotel Statler, Buffalo, N. Y. Arthur S. Phelps, executive secretary, Pratt and Letchworth Company, Inc., 189 Tonawanda St., Buffalo, N. Y.